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ABSTRACT

For educators interested in developing Web sites, four major issues should be addressed--ethics, prerequisites, design, and layout. By giving attention to these four areas, teachers will develop Web sites that improve their teaching and increase the opportunities for student learning. Each of these areas is addressed in detail, including: definitions of ethical behavior and copyright, along with fair use guidelines (ethics); basics needed to access the Internet, as well as other software and computer knowledge needed (prerequisites); researching and developing a theme for personalizing the Web site, considerations for determining the audience, and communicating ideas effectively and creatively (design); and creating thumbnail sketches and a storyboard, along with tips for addressing layout concerns (layout). (Contains 11 references.) (AEF)

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Developing a Web Page: Ethics, Prerequisites, Design and Layout

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Developing a Web Page: Ethics, Prerequisites, Design and Layout

Joseph A. Scarcella & Kenneth E. Lane

Initially, the Internet was designed to disseminate information during national emergencies (America Online, 1997). Today, the Internet connects millions of people including educators, schools, universities and governmental agencies. The Internet allows for the distribution of interactive multimedia platforms (photography, text, sound, video, and graphics) from private, public, government, and education entities to users around the world (AOL, 1997; Wiggins, 1995). The Internet gives people seeking information the ability to communicate with others through, but not limited to, electronic mail (e-mail), Internet relay chat, file transfer protocol, Telnet, Listserv, newsgroups, the Web, Gopher, and Wide Area Information Service (Scarcella & MacPherson, 1996). With these capabilities and the potential for further development, many people are choosing to not only use the Internet, but also are choosing to develop their own Web sites.

For teachers, the benefits of using a Web site are immense. Among the benefits are demonstrating class experiments or activities, developing an Internet reference list to provide source information for students and colleagues, and communicating with students and colleagues (Hill, 1996). Students learn to communicate their ideas, opinions, and knowledge on the Internet with peers and teachers in authentic learning environments. Authentic learning refers to assessment tasks that resemble reading and writing in the real world and in school. Its aim is to assess many different kinds of literacy abilities in contexts that closely resemble actual situations in which those abilities are used (Valencia, 1997).

For educators interested in developing Web sites, four major issues should be addressed--ethics, prerequisites, design and layout. By giving attention to these four areas, teachers will develop Web sites that improve their teaching and increase the opportunities for student learning.

Ethics

Ethical behavior is basically concerned with the nature of morals and moral evaluation - e.g., what is right and wrong, virtuous or vicious, and beneficial or harmful (to others). Intellectual property and copyright law must be understood when creating a Web site in order for the teacher and the Web site to have integrity and meet ethical standards. Failure to exercise ethical behavior in developing a Web site models illegal behavior for students and colleagues, and may well be a violation of state and federal laws.

Copyright is the exclusive right to reproduce, publish, and sell the matter and form of literary or artistic work for one's own personal gain (Lovell, Zwahlen & Folts, 1993). Copyright laws were developed to protect one's work. Copyright laws as they pertain to printed materials are fairly well understood. Copyright as it pertains to the Internet is currently being addressed by several groups, including the Web designers, the legal profession, and legislators. The viewpoint that one can go to a Web site and copy material and post it on one's own Web site without permission is not legally defensible. One cannot do this with printed materials and it is illegal in creating one's own Web site.

Based upon the uncertainties associated with posting materials on the Internet for teaching purposes, the following guidelines (modified by replacing "university" with "school") are found in the Fair Use Guidelines for Educational Multimedia (1997) or developed from the author's personal experiences:

· Lawfully acquired copyrighted materials may be used for a period of up to two years. For use beyond that time, you should seek additional approval.

· All Students in your classes should be instructed about the reasons for copyright protection.

· Do not post anything you do not want copied.

· Consider membership to or subscription to (*password*) your course pages residing on the Internet.

· Consider login names and passwords to protect your materials and copyrighted materials.

· Incorporate only portions of lawfully acquired copyrighted works in your multi-media presentations.

· Consider the use of published software for Internet teaching.

· Place a copyright statement on the homepage you create for your course(s).

· Consult with your School to decide whether the material, including graphics, video clips, and pictures are the property of the School or whether the school will enter into a signed agreement that those materials are owned by you personally.

· Decide whether you are interested in sharing openly and freely your ideas in teaching via the Internet. This decision will guide your actions in posting materials.

· Seek individual permission before using copyrighted works in educational multimedia projects for distribution.

· Be cautious in downloading material for the Internet. A mix of works protected by copyright and works in public domain exist on the network. The mere fact that the work is published on the Internet does not automatically indicate that the material may be copied.

· Exercise integrity when altering another's works and advise your audience of the alterations.

· When placing a photograph on a Web page, you must obtain permission from the person(s) in the picture.

Prerequisites

Before even thinking about creating a Web site, certain prerequisites need to be in place. To access the Internet, you will need the following basics:

· A multimedia computer

· Software that enables you to create a Web site (Note that there are locations such as GeoCities and Tripod on the Internet that allow one to build a page without knowing HTML.)

- Modem (at least I4,400 baud per second [BPS])
- Online service account (e.g., America Online, AT&T Worldnet, Earthlink, GTE, etc.)
- Telephone or direct connection
- Imagination (see Scarcella & MacPherson, 1996; Wiggins, 1995).

To view information on the Web, you must have a World Wide Web browser that allows access to the Internet (e.g., Netscape Navigator, Microsoft's Internet Explorer). You will need a word processor to open and create the source code of the Hypertext Mark-up Language (HTML) documents that form the basis of Web pages (Scarcella & MacPherson, 1996; Wiggins, 1995). Some programs on the market. such as Adobe Pagemill, Netscape Communicator, and Microsoft FrontPage, make it easier to create HTML documents (Hill, 1996) and thus make writing code in a word-processing program outdated.

However, creating unique and interesting Web sites, as well as troubleshooting why an aspect of the page does not work as it should, requires an understanding of HTML programming. One helpful guide that you may download free via the Web is NCSA's Beginner's Guide to HTML (http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimer.html), created at the University of Illinois, Urbana-Champaign.

Finally, in order to publish a site on the Web, you will need a File Transfer Protocol (FTP) program, which uploads and downloads HTML files to (send) and from (receive) your Web service provider. Common FTP tools include Fetch for Macintosh and Wind Sock-FTP for IBM-compatibles.

Design

Creating a Web site may be a whole class project, small group project, individual project, or some combination of the above. Whatever your preference, a theme needs to be developed for personalizing your site. Viewers easily perceive individuality and character. Therefore, understand that your site will make a statement. In creating a theme, determine your purpose, objective, and audience (Burger, 1993; Hofstetter, 1995).

The next step is to explore the Internet for existing sites that relate to your goals and audience. Looking at examples will help you determine the type of site you would like to create. In examining the Web site, look at its source code (Hill, 1995). The source code may be viewed by clicking on the [View] button in the menu bar and then clicking on [Source]. Read your browser's instructions to see exactly how to access a Web site's source code, as it may vary depending upon the browser. The HTML Web site programming language gives the Web browser, whether it is Netscape or Internet Explorer, directions to carry out certain functions. Looking at the source code of a Web page shows how that page was created.

In viewing Web sites and determining the audience you wish to reach, answers must be obtained for some pertinent questions. The questions with possible answers include, but are not limited to, the following:

Q. What criteria will you use to determine the message you will deliver?

A. Clearly defined objectives are established that determine the audience and promote easy accessibility.

Q. How will your site motivate viewers?

A. It is esthetically pleasing. It is interesting. It provides information.

Q. How will it pursue and excite its audience?

A. Intriguing graphics and photos, links to additional resources, the possibility of forums and chat rooms, guestbook, forms, etc. are offered. It provides and shows the promise of interactivity.

Q. Are you going to have links to other Web sites?

A. Yes.

Q. How will you facilitate movement to other pages within your site?

A. Through the use of hyperlinks, jumplinks, frames, and tables.

Q Will you enable viewers to e-mail you directly from the Web site?

A. Yes, an e-mail link will be developed.

Q. Do you need to place a counter on your Web site to measure its success in terms of the number of times it has been viewed?

A. Yes, because it will measure the hits (times viewed) and return the number of hits to the site.

A well-designed Web site should have a uniform appearance, i.e., the text always appears in one location on the screen and every screen of the site displays the same key elements. Additionally, the Web site needs to convey a feeling of proportion, rhythm, balance, and unity (Burger, 1993; Johnson, 1992). Viewers need to know that they are still at the same site and have not jumped to a different site.

A Web site must communicate ideas clearly and effectively. It should be a unique site so as to attract visitors who not only read the information presented, but also act on the discovery of that information. Uniqueness and creativity can transform a dull subject into an interesting and different learning experience. A Web site should inform, illustrate, and explore ideas that promote a common cause or theme throughout its entirety. Excellent do's and don'ts on designing Web sites may be found in magazines such as *Wired, New Media, Pre, Syllabus, Multimedia Solutions, Adobe, and Internet*. Thoughts worth pondering when designing Web sites include:

· Keep the site simple, but interesting.

· Keep the site user friendly by enabling the viewer to load your Web site quickly. A 14,400 BPS modem takes one second to download one kilobyte (kb). Therefore, a site with one 120kb photograph will take two minutes to download. There are faster modems, but you need to take into account that some visitors accessing your site are not purchasing them every time one is marketed. Web site designers always want dramatic features on their sites, but they need to realize both the Internet's limitations and that viewers do not all have the same abilities and capabilities. What attracts visitors to a site can also drive them away (Burger, 1993).

· Know the limitations of the software being used. Use a software program that has authoring capabilities with a Graphic User Interface (GUI is an icon-driven program much like Microsoft Office). Most importantly, find a software program that you feel

comfortable using. Burger (1993) and Hofstetter (1995) suggest using software that you may learn quickly and adapt to fit your needs.

· Learn some HTML coding in order to have greater control when troubleshooting and enhancing your site. This is especially true when using programming languages such as Lava or Pearl.

· You must upload your creation to the Internet. Consult with your Internet Service Providers (ISP) on the techniques involved in uploading and downloading files to and from your account. Your site may change during the year based upon the content and usefulness of the site or aim of the assignment.

· Your students must be computer literate, i.e., know how to use application software and computer hardware.

· Teaching students to create a Web site requires combining theory and practice. Take care to ensure that you have enough time, knowledge, and stamina to complete the task. The time required to design a fully-functional Web site varies from one week to one month depending on your time constraints and the size of the site. The amount of time needed also depends on your technical knowledge of the software and hardware used to create a Web site.

Layout

Before doing any computer work, a Web site author needs to create thumbnail sketches and a storyboard (Burger, 1995). A thumbnail sketch is a drawing done very quickly to lay out the general areas where you will locate graphic elements on your site. A storyboard consists of many thumbnail sketches placed in the order in which they will be seen. By developing a storyboard to display and express ideas, authors better visualize their work's organization.

To help solidify your ideas when developing a storyboard, gather photographs, graphics, sound, and video, and compose the text you will use (Hofstetter, 1995). Clip-art packages may be purchased that have copyright-free images, sounds, and videos pre-formatted for the Web. You may also use anything recorded yourself or designated as copyright-free.

After completing the initial storyboard, electronically digitize all original resources into the computer. Whenever possible, use copyright-free images and sounds that you find on the Web. These elements, already in the correct digitized form, need no additional work to prepare them for the Web. When you need images, sounds, or video that you cannot find on the Web, digitize that information using a scanner, microphone, or video camera. Since the procedures for digitizing information vary, read the instructions specific to your equipment. Generally, images for the Web should have a resolution of 72 dpi and appear in GIF or JPEG format, while sound should appear in WAV or AIFF format. Videos typically take one of three different formats: MPEG, AVI, or QuickTime. Whatever the element, always try to minimize the file size of each.

When addressing layout concerns in a Web site creation project, consider the following tips:

· First, require students to submit a proposal outlining their ideas for a Web page or assign them Web site projects to establish specific pages. Proposals must list the purpose and object of the site and identify the audience. Consider group collaboration on how to achieve necessary steps toward developing the site and how to present their answers to the problem.

· Second, generate ideas for solving the problem by choosing the way to present information (e.g., text, graphics, pictures, video, etc.).

· Third, after students author an HTML document, have them send it to the service provider. When the Web site is viewable on the Web, validate the reliability of the site by testing all links, graphics, pictures, video, etc., to see whether they work correctly (Burger, 1993; Johnson, 1992).

· Fourth, assess the feedback given on the site and make the appropriate alterations or adjustments.

· Fifth, assess the project as it transpires. Remember, before assessing the project, research the topic and its related literature on the Internet to see what has already been reported on the subject. A Web site should constantly evolve as a result of information and techniques added, changed, and communicated (Wiggins, 1995).

Summary

Creating a Web site provides teachers with the benefits of demonstrating class experiments or activities, developing an Internet reference list to provide source information for students and colleagues, and communicating with students and colleagues. It provides students with the benefits of learning to communicate their ideas, opinions, and knowledge on the Internet with peers and teachers. However, imbedded in the creation of a Web site are responsibilities for adhering to and maintaining ethical standards and for meeting the prerequisites for computer literacy. Included in these are knowledge of how to use hardware and software and understanding how to design and lay out the site to entice and keep your audience. Most importantly, the creation and use of the Web site improves communication skills necessary for meeting the challenges of the 21st century.

Web site development creates a sense of accomplishment for both the teacher and the student. Success in creating Web sites requires time, imagination to explore, and a desire to learn. Keep exploring Web sites to gain new ideas for your own site. Never stop changing your Web site. It should always be an evolving location for learning.

Make sure the site meets all ethical concerns, has a design that reflects planning, and has an easily-followed layout. If it meets these criteria, then you will learn and have fun!

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